

Amendments To The Claims:

Please amend the claims as shown.

1 – 16 (canceled)

17. (new) An apparatus for generating a single sideband signal from an input optical signal, comprising:

an optical phase modulator that optically phase modulates the input optical signal in accordance with a control signal to produce the single sideband signal;

a converter that converts a portion of the input optical signal into a corresponding electrical signal; and

a control signal generator that generates the control signal in response to an optical signal pulse shape of the input optical signal represented in the portion of the input optical signal converted into the electrical signal.

18. (new) The apparatus according to claim 17, wherein the electrical analog processor comprises-the following function:

$$f(x) = 0.5 \cdot \log(x)$$

where, x represents the converted electrical signal.

19. (new) The apparatus according to claim 17, wherein the electrical analog processor comprises the following function:

$$f(x) = \sqrt{\frac{x}{\bar{x}}}$$

where, x represents the converted electrical signal and  $\bar{x}$  is the mean value of x.

20. (new) The apparatus according to claim 17, wherein the electrical analog processor comprises the following function:

$$f(x) = \frac{x}{\bar{x}}$$

where,  $x$  represents the converted electrical signal and  $\bar{x}$  is the mean value of  $x$ .

21. (new) The apparatus according to claim 17, wherein a wavelength division multiplexor multiplexes the single sideband signal according to a wavelength division.

22. (new) The apparatus according to claim 17, wherein the optical phase modulator modulates the input optical signal suppressing optical power on at least one of the sidebands of the input optical signal.

23. (new) The apparatus according to claim 17, wherein the control signal generator comprises a phase shift transform function.

24. (new) The apparatus according to claim 17, wherein the control signal generator comprises a Hilbert transform function.

25. (new) The apparatus according to claim 17, wherein the control signal generator comprises an electrical analog processor that reshapes the electrical signal into a shape compatible with the control signal generator.

26. (new) The apparatus according to claim 17, wherein a delay is introduced before the optical phase modulator that accounts for a delay in the electrical signal due to electrical component delays.

27. (new) The apparatus according to claim 17, wherein an optical tap diverts a portion of the input optical signal power to the converter.

28. (new) A method for generating a single sideband signal from an input optical signal, comprising:

converting a portion of the input optical signal into an electrical signal that corresponds to the input optical signal;

generating a control signal based on an optical signal pulse shape represented in the portion of the input optical signal converted to the electrical signal; and

optically phase modulating the input optical signal based on the control signal.

29. (new) The method according to claim 28, wherein a Hilbert transform is utilized to track the shape of the input optical signal.

30. (new) The method according to claim 28, further comprising tapping a portion of the power signal of the input optical signal.

31. (new) The method according to claim 28, wherein the optical phase modulation further comprises a wavelength division multiplexing of the input optical signal.

32. (new) The method according to claim 28, further comprising, detuning the optical phase modulation relative to the center frequency of the input optical signal.